

AMENDMENTS TO THE CLAIMS:

1. (currently amended) [[An]] A process for making a deformable, hollow thermoplastic doll head, comprising:

(a) providing an injection moldable flexible thermoplastic elastomer;

(b) providing a first mold, the mold comprising exterior mold front and rear sections and an interior core which extends vertically through the first mold, the first mold comprising a parison injection station, wherein the exterior sections of the first mold are spaced apart from the interior core to define a first mold cavity in the shape of a substantial portion of the doll head including the whole face from forehead to neck;

(c) assembling the exterior mold sections of the first mold thereby forming a planar junction between the exterior mold parts;

(d) injecting the elastomer into the first mold cavity ~~at a pressure of from about 200 psig to about 1,000 psig~~ to form a parison;

(e) opening the exterior mold parts of the first mold and transferring the rear section of the first mold and the parison to a blow station;

(f) providing a second mold at the blow station, the second mold comprising an exterior mold front section, the rear section of the first mold, and an interior core, wherein the exterior mold front section of the second mold and the rear section of the first mold exterior sections are oriented latitudinally relative to one another and wherein the exterior sections of the second mold are spaced apart from the interior core of the second mold to define a cavity in the shape of the entirety of the hollow doll head;

(g) drawing a vacuum on, and injecting compressed gas into, the second mold, thereby dispersing the parison relatively evenly, and with a substantially uniform thickness, against the second mold cavity interior surface to form the hollow doll head, the hollow doll head having an opening for removing the interior core, ~~wherein the diameter of the opening is substantially narrower than the diameter of the core to pass through the opening~~;

(h) cooling the dispersed parison, thereby causing it to set and form the hollow ~~article segment~~ doll head; and

(i) separating the second mold interior core from the hollow doll head, wherein (I) the second mold cavity vacuum pressure ranges from about -7 psig to about -14.5 psig, the pressure of the compressed gas injected into the second mold ranges from about 80 psig to about 1,000 psig, the parison injection station temperature is from about 150°C to less than about 300°C, the temperature of the compressed gas injected into the second mold ranges from about 30°C to about 40°C, a vacuum is drawn upon the first mold cavity for about three to about ten seconds prior to the end of the elastomer injection period, the elastomer is injected into the first mold cavity over a period of from about 0.2 to about 6 seconds and the cooled and dispersed parison sets within the second mold in about 5 seconds to about 90 seconds; and

(II) the doll head has a hair line which forms a substantially continuous circle extending around the top of the doll head, and the first mold ~~interior core defines a cavity~~ is in the shape of a portion of the hollow doll head below the hair line, the rear section of the first mold defining facial features of the hollow doll head.

2-5. (cancelled)

6. (original) The process of claim 1, wherein the elastomer is a material selected from the group consisting of optionally hydrogenated styrene-ethylene/butylene-styrene (S-EB-S), styrene-butadiene-styrene (S-B-S), styrene-isopropene-styrene (S-I-S), styrene-diene, styrene-isoprene and styrene-butadiene block copolymers.

7. (original) The process of claim 1, wherein the elastomer is a KRATON® block copolymer having an elasticity ranging between about two hundred fifty to five hundred fifty percent.

8. (original) The process of claim 1, wherein (a) a vacuum is drawn on the second mold through a valve pin inserted through the second mold cavity, and (b) pressurized gas is injected into the second mold cavity through a movable core pin.

9. (previously presented) The process of claim 1, wherein a vacuum is drawn on, and compressed gas is injected into, the second mold at approximately the same time.

10. (currently amended) The process of claim 1, wherein:

~~the doll head has ears and a hair line, the hair line forming a split line of the front and rear molds is a substantially continuous circle extending~~ resulting in the formation of the hair line around the top of the doll head ~~and above the ears; and~~

the first mold interior core defines a cavity in the shape only of the portion of the hollow doll head below the split line of molds.

11. (previously presented) The process of claim 1, wherein the interior core of the second mold includes a core ejector pin and a core sleeve surrounding the pin, and upon separation of the second mold interior core from the deformable hollow thermoplastic doll head the core sleeve is retained in a fixed position relative to the ejector pin and the ejector pin is forced up against the deformable hollow thermoplastic doll head to push the deformable hollow thermoplastic doll head off of the core sleeve, thereby removing the deformable hollow thermoplastic doll head from the ejector pin.

12. (previously presented) The process of claim 1 wherein the interior core of the second mold includes a hollow conduit in communication with the interior of the deformable hollow thermoplastic doll head -forming cavity, and a pressurized gas is blown through the conduit and into the hollow interior of the deformable hollow thermoplastic doll head to separate it from the second mold interior core.

13. (currently amended) The process of claim 1 wherein the second mold is designed with a pre-determined ratio of the diameter of the core relative to the diameter of the opening to allow removal of the core through the opening, said pre-determined ratio being less than ~~a maximum stretchability limit of the opening of deformable hollow thermoplastic doll head to be formed from the flexible thermoplastic elastomer~~ 4:1 for commonly market available thermoplastic elastomer for making doll heads.

14. (original) The process of claim 13, wherein the thermoplastic elastomer is a S-B-S copolymer, and the pre-determined ratio is more than about two.

15. (previously presented) The process of claim 1, further comprising: (a) placing a removable object onto the surface of the interior core of the second mold; (b) assembling the exterior parts of the second mold around the core and removable object; and (c) overmolding the removable object with the thermoplastic elastomer when the parison is dispersed within the second mold cavity interior surface, such that the removable object is retained in the deformable hollow thermoplastic doll head when the interior core is removed.

16. (previously presented) The process of claim 15, wherein the thermoplastic elastomer overmolds only a portion of the removable object such that the removable object protrudes through the exterior surface of the deformable hollow thermoplastic doll head.

17. (previously presented) The process of claim 16, wherein the removable object is a doll eye.

18. (previously presented) The process of claim 1, further comprising placing at least one portion of an exterior part of the first mold in contact with the interior core to define at least one opening to be formed in the deformable hollow thermoplastic doll head.

19. (previously presented) The process of claim 18, further comprising placing an article into at least one of said openings formed by the contact between the exterior mold part and interior core after the deformable hollow thermoplastic doll head is removed from the second mold interior core.

20. (original) The process of claim 10, further comprising removing the head from the second mold interior core, wherein the second mold interior core comprises at

least two separable sections, and the hollow doll head is removed from the second mold interior core by separately and individually removing each separable core section from the head through the opening.

21. (original) The process of claim 1, wherein at least one of the interior core separable sections of the second mold is a key section that must be removed first to allow other separable sections to be later removed.

22. (previously presented) The process of claim 21, wherein after the interior core separable sections of the second mold are removed from the deformable hollow thermoplastic doll head, the sections are reassembled and replaced in the exterior of the second mold for forming another deformable hollow thermoplastic doll head.

23. (original) The process of claim 10, further comprising rooting hair-material to the top of the doll head above and below the part line with a sufficient density such that the part line is not observable to an ordinary observer holding the doll at arms length.

24-45. (cancelled)

46. (new) A process for making a deformable, hollow thermoplastic doll head, comprising:

(a) providing an injection moldable flexible thermoplastic elastomer;

(b) providing a primary mold including an exterior first mold section and an exterior second mold section and further including an interior core extending vertically through the primary mold, the exterior sections of the primary mold being spaced from the interior core at an injection station to define a first mold cavity in the shape of a substantial portion of the doll head, the first mold section of the primary mold being formed with details of a face of the doll head;

- (c) assembling the exterior mold sections of the primary mold so as to form a planar junction between the exterior mold sections;
- (d) injecting the elastomer into the first mold cavity of the primary mold at the injection station to form a parison having facial features formed by the first mold section of the primary mold;
- (e) opening the exterior mold sections of the primary mold and transferring the first mold section together with the parison to a blow station;
- (f) providing a secondary mold at the blow station, the secondary mold comprising an exterior third mold section, the first mold section, and the interior core, wherein the third mold section and the first mold section are spaced apart from the interior core to define a second mold cavity in the shape of the entirety of the doll head;
- (g) drawing a vacuum on, and injecting compressed gas into, the secondary mold, at the blow station, thereby dispersing the parison relatively evenly, and with a substantially uniform thickness, against an interior surface of the second mold cavity to form a molded hollow doll head, the hollow doll head having an opening for removing the interior core;
- (h) cooling the dispersed parison, thereby causing it to set in the form of the hollow doll head; and
- (i) separating the interior core from the hollow doll head; and
- (j) removing the hollow doll head from the first mold section, the facial features of the doll head having been formed against the first mold section during the injecting the elastomer into the first mold cavity.

47. (new) The process of claim 46, wherein a major diameter ratio of the interior core to the opening in the hollow doll head is at least 3 : 1 and a major diameter ratio of the hollow doll head to the opening therein is at least 5 : 1.

48. (new) The process of claim 46, wherein the vacuum pressure in the second mold cavity ranges from about -7 psig to about -14.5 psig, the pressure of the compressed gas injected into the secondary mold ranges from about 80 psig to about 1,000 psig, the parison injection station temperature is between about 150°C and less than about 300°C,

the temperature of the compressed gas injected into the secondary mold ranges from about 30°C to about 40°C, a vacuum is drawn upon the first mold cavity for about three to about ten seconds prior to the end of the elastomer injection period, the elastomer is injected into the first mold cavity over a period of from about 0.2 to about 6 seconds and the cooled and dispersed parison sets within the secondary mold in about 5 seconds to about 90 seconds.

49. (new) The process of claim 46, wherein the hollow doll head has a hair line which forms a substantially continuous circle extending around the top of the doll head, a planar junction or split line between the first mold section and the third mold section giving form to the hair line.

50. (new) The process of claim 46, wherein the elastomer is a material selected from the group consisting of optionally hydrogenated styrene-ethylene/butylene-styrene (S-EB-S), styrene-butadiene-styrene (S-B-S), styrene-isopropene-styrene (S-I-S), styrene-diene, styrene-isoprene and styrene-butadiene block copolymers.

51. (new) The process of claim 46, wherein the elastomer is a KRATON® block copolymer having an elasticity ranging between about two hundred fifty to five hundred fifty percent.

52. (new) The process of claim 46, wherein (a) a vacuum is drawn on the secondary mold through a valve pin inserted through the second mold cavity, and (b) pressurized gas is injected into the second mold cavity through a movable core pin.

53. (new) The process of claim 46, wherein a vacuum is drawn on, and compressed gas is injected into, the secondary mold at approximately the same time.

54. (new) The process of claim 46, wherein the interior core includes a core ejector pin and a core sleeve surrounding the pin, and upon separation of the interior core from the hollow doll head the core sleeve is retained in a fixed position relative to the

ejector pin and the ejector pin is forced up against the hollow doll head to push the hollow doll head off of the core sleeve, thereby removing the hollow doll head from the ejector pin.

55. (new) The process of claim 46 wherein the interior core includes a hollow conduit in communication with the interior of the second mold cavity, and a pressurized gas is blown through the conduit and into the hollow interior of the hollow doll head to separate the hollow doll head from the interior core.

56. (new) The process of claim 46 wherein the second mold is designed with a pre-determined ratio of the diameter of the core relative to the diameter of the opening to allow removal of the core through the opening, said pre-determined ratio being less than 4:1 for commonly market available thermoplastic elastomer for making doll heads.

57. (new) The process of claim 56, wherein the thermoplastic elastomer is a S-B-S copolymer, and the pre-determined ratio is more than about two.

58. (new) The process of claim 46, further comprising: (a) placing a removable object onto the surface of the interior core; (b) assembling the exterior parts of the secondary mold around the interior core and the removable object; and (c) overmolding the removable object with the thermoplastic elastomer when the parison is dispersed within the interior surface of the second mold cavity, such that the removable object is retained in the hollow doll head when the interior core is removed.

59. (new) The process of claim 58, wherein the thermoplastic elastomer overmolds only a portion of the removable object such that the removable object protrudes through the exterior surface of the hollow doll head.

60. (new) The process of claim 59, wherein the removable object is a doll eye.



61. (new) The process of claim 46, further comprising placing at least one portion of an exterior part of the primary mold in contact with the interior core to define at least one additional opening to be formed in the hollow doll head.

62. (new) The process of claim 61, further comprising placing an article into said additional opening after the hollow doll head is removed from the interior core.

63. (new) The process of claim 46, further comprising removing the head from the interior core, wherein the interior core comprises at least two separable sections, and the hollow doll head is removed from the interior core by separately and individually removing each separable core section from the head through the opening.

64. (new) The process of claim 63, wherein at least one of the separable interior core sections of the second mold is a key section that must be removed first to allow other separable sections to be later removed.

65. (new) The process of claim 64, wherein after the separable interior core sections of the second mold are removed from the hollow doll head, the sections are reassembled and replaced in the second mold cavity for forming another hollow doll head.

66. (new) The process of claim 49, further comprising rooting hair-material to the top of the doll head above and below the hair line with a sufficient density such that the hair line is not observable to an ordinary observer holding the doll head at arm length.